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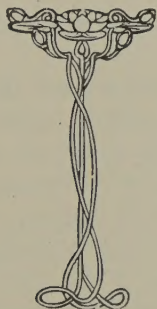
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A Preliminary Account of the Physical
Anthropology of the "Cape Coloured
People" (Males)

by

G. F. VAN WYK, B.Sc.



NATIONALE PERS, BEPERK, Capetown.

1939.

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1. INTRODUCTION.

"The Hottentots of the old Cape Colony exist no more. In their place a few scattered thousands of half-breeds, of mixed Hottentot and white or slave blood, are there, but not, however, to tell the tale of their past history, for they have forgotten." Such is Prof. Maingard's somewhat sad, but truthful view of the present Coloured generation having their abode mostly in the Western corner of the Cape Province.

Because of this racial intermixture of bloods, there is a vast difference between these people and their ancestors, who had the same haunts, and dwelt in those parts a few centuries ago. It is, of course, impossible to ascertain at what period, during the history of these people, the old Hottentot race ceased to exist and the new population came into being; we may consider it as a gradual growth of a more mixed people and a similar decline of the old parent-race, the Hottentots.

When speaking of the "Coloured People" or "Cape Coloureds" we do not, in this preliminary contribution, include the large number of "natives" found in the Western Province to-day, and also definitely exclude all full-blooded representatives of the Eastern races.

The Coloured People encountered by Van Riebeeck and his men played a comparatively important role in the early days at the Cape. The same is true to-day of the present Coloured Population, although there is a vast difference as to the social and other factors of the present time and those of the seventeenth century. The men mostly work as labourers on the farms or in the towns, while a considerable percentage earn their living

as shoe-repairers, builders, or as other more specialised craftsmen. The women, on the other hand, are mostly employed by the white community as servants in their houses, or as factory workers in the cities. To-day a grave situation has arisen on account of farms being practically drained of labourers as a result of the Coloured People moving into neighbouring towns. As a result of greater educational facilities, these people are more civilized than the original Hottentots or the Bushmen. In fact, the Cape Coloured people are becoming more and more education conscious. The old uncivilized "Hottentot", therefore, has practically disappeared, making place for a more intellectual Bastard population, having a new mode of life and speaking a language more or less the same as that of the white man. Within the confines of this short paper it is not practicable to discuss the possible influence of a changed social and hygienic environment on the physical anthropology of the Cape Coloureds.

Material.

The preceding paragraph gives only a brief survey of the Coloured People and their status in the social life of to-day. It is about four hundred years ago that contact was effected between the early Dutch settlers and the Hottentots. It should be borne in mind that we cannot consider them as a "Naturvolk" but as a "population", as a result of a heterogenous blood admixture of various races as will be discussed more fully below.

Males alone were investigated and only those above twenty years of age were measured; thus practically ensuring that the growth period ("Postpubeszenzstufe") was over, and that the individual length and breadth measurements would be definitive.

Quite a number of difficulties were experienced. Usually the men worked during the day and could not present themselves for examination. A factor that gave considerably more trouble was what appeared to be their suspicious nature of the proceedings. Some expected an operation whilst others feared that I was about to extract a couple of teeth. Much coaxing was thus necessary at first, and only gradually it became known among them that nothing harmful was intended and enough material was then obtained. Every one received a small fee

for his willingness to be measured. This proved to be a considerable inducement.

No special type was asked for, and all normal adults were measured except of course those that were patently Bantus. The individuals examined are in my opinion quite representative of the Coloured Population.

The total number examined was one hundred and thirty-three. The majority of these were born in Stellenbosch and all of them reside there. The accompanying chart shows the various districts of origin represented. Every black dot represents an individual born in that town or district.

Ascent.

Practically the only method of ascertaining the ascent of an individual, was to question him regarding the races to which his parents and grandparents belonged. Unfortunately one cannot attach much value to the answer, and moreover, quite a large number directly told me that they never saw their parents, not even to mention their grandparents. By observation and with growing experience, as the work progressed I could, with some accuracy tell the bloodmixture present in the individual. This method was taken as a last resource where personal questioning gave negative results. I admit that this is not the strictly scientific and correct method of the anthropologist, but it was perhaps under the circumstances better than nothing at all.

In most cases we can be sure that the substratum is Hottentot, and as will be seen from the accompanying tables, most individuals are stated to be of Hottentot ascent mixed with some other race. Only in a few instances was the Hottentot blood apparently unmixed, but even so, one cannot be sure.

Referring to the tables as well as the script, the following abbreviations are used:

Hott.—Hottentot.
Eur.—European.
Ind.—Indian.

- one individual measured.
- Boundaries.



South West Africa.

Mans.—Mozambique.

Bush.—Bushman.

Sem.—Semite.

Although I do not propose to go into detail concerning the ascent of the material, I think it is essential to make a few remarks on this subject.

"Recording a pure-bred Hottentot is, now, as important as recording a Bushman, for it is a moot question if a pure-bred Hottentot of middle age exists at the present time in the Cape Province." The quotation is from the late Dr. Péringuey's "Report of the South African Museum" (Dec., 1922). Even the skull of a typical Hottentot is something of a find, as these interesting people did not bury their dead, but propped the corpse in a crevice where the hyaenas and wild dogs mutilated the body to such an extent that the skull and other skeletal parts are mostly lost to Science. The above statement also holds for the Bushman to-day. These modern "Pinafore-people" ("San", as the Hottentots called them), are to-day in reality largely a mixture of Bushman and Hottentot blood. Notwithstanding these facts, one or two typical Bushmen presented themselves; both the facial features and the indices (height of body, index cephalicus, etc.) bore this out. Not a single pure-bred Hottentot was observed; twenty-nine per cent. were classified as Hott.-Bush.

European blood seemed to be obviously present in the Coloured People. The physical character of the white man seems to be dominant although of course Hott. characters are also indicated. The skin is then darker than that of the European although again of a lighter shade than the Khoisan type. Thus the hair is more "netted" and less "perperkorrel"-like; the face is high and the nose is noticeably narrower than that of the Hottentot type. The percentage Eur.-Hott. measured was thirty-nine per cent.

Another group was constituted by the Ind.-Hott. or Eur. type. Especially in the vicinity of Cape Town this breed is abundantly found, and is apparently a result of crossing between Eur. and Hott. with the slaves imported from the East by the

Dutch East India Company a few centuries ago. The straight dark hair, slightly copper-coloured skin, high, thin nose, etc., are typical characteristics of this class. Sixteen individuals of this class were examined.

As already stated, pure-bred Bantus were not accepted for observation, although quite a number presented themselves. Quite a high percentage, however, represented a cross between Bantu and Hott. In these the Bantu characteristics seem to predominate: there is a darker skin, broad, wide nose, longer and thinner lower extremities and a long, thin penis. This type represented thirteen per cent. of the material.

A very interesting group was constituted by a few "Masbiekers" (a name presumably derived from Mozambique). Quite a number of the older Coloureds are direct descendants of these dark-skinned people from Mozambique. Where the Kaffir usually has a shiny-black skin, these people have a more "dead" black facial colour. Even the mucous membrane of the lips is darkly pigmented, often having a bright red "area" or impigmented spot on the lower lip.

The remaining persons can be classed under "miscellaneous", and consist of Griqua and other strains, although most of them have a good deal of Hott. blood in their veins. Only eight individuals (including the "Masbiekers"), were represented in the material.

As was to be expected the material is of a heterogenous nature, considering the different blood-types represented. Consequently one does not expect to find uniform constant values, indices and Somatoscopical results; the graphical illustrations (see below) bear this out. Treating the respective groups separately would have been of great interest, but owing to lack of time this must be reserved for a later paper. It was therefore decided to consider the Coloureds as a whole, only giving the most important values (bodily height, breadth-length index of the head, etc.) of the individual groups for purposes of comparison.

Instrumentarium and Technique.

The instrumentarium of Prof. Rudolph Martin was used for this research work. I do not propose to describe the separate instruments here, as Martin's "*Lehrbuch der Anthropologie*" (both the 1914 and 1933 editions) give all the necessary details, supplemented as follows:

1. **Anthropometer:** Used for all measurements of height (distance from floor) of the respective points. Used also for measuring the distance from dactylon III of right hand to the corresponding point of the left hand, and for measuring the sitting height.

2. **Beam Compasses:** Utilised for all horizontal (breadth) distances of body, length of upper and lower arm, length and breadth of foot and hand, height of ear with reference to head, total height of head (Gnathion-Vertex), morphological and physiognomical heights of face and upper facial height (morphological and physiognomical).

3. **Calliper Compasses:** For measuring the length and breadth of head, maximal distance between Gonion, Zygion and minimum breadth of forehead.

4. **Sliding Compasses:** Only used for facial measurements such as distance between pupils, breadth of eyeslit, nasal breadth and auricular measurements.

5. **Tape Measure:** For all circumferential measurements, both of head and chest as well as the girth of different parts of the extremities. Also used for obtaining the Transverse and Sagittal cephalic arches.

For the Somatoscopic observations the following apparatus was used:

- (a) **Martin's Eyecolour tablet:** ("*Augenfarbentafel*"): For ascertaining the colour of the iris.
- (b) **Von Luschan's "*Hautfarbentafel*":** To obtain the colour of the different regions of the skin, penis,

scrotum, nipples and nails. It is worth mentioning that this tablet sometimes gave much trouble in getting the right shade of the skin as the result of reflection from the glass. However, with a little practice one gets used to it and later one knows how to tilt the tablet on the right angle to the epidermis so as to avoid undue reflection.

- (c) For determining the hair-colour, Fischer's "**Haarfarbentafel**" was used.

Although the needles used in taking the auricular height of the head were available, they were not used. This appliance is to aid one in keeping the shaft-part of the beam compasses in the correct angle, but it was found to be more of an encumbrance than an assistance. Moreover one gets accustomed in time to keeping the instruments in the correct position.

Further references will be made to the technique, where necessary, as the different "points" are treated below. In discussing the various measurements, the numbers refer to the "Messblatt" accompanying Martin's Lehrbuch (op. cit.).

The work was carried out according to Martin's method, so that it will be superfluous to give details regarding the technique. The measurements and somatoscopic observations were carried out in a room in the Zoological Department of the University of Stellenbosch. The apartment was quite private, so that no curtains were necessary that might otherwise have interfered with the light and consequently have made readings and somatoscopic work difficult and inaccurate. The door was locked during each examination so that I had absolute privacy during the investigation of an individual.

A thick cloth was hung against a vertical wall so that no part of the person's body was in direct contact with the cold wall. The wall was so chosen that the full light of a window fell on the right side of the body. Only diffused light was used during somatoscopic takings. During cold weather, use was made of an electric heater, so that the person under observation had no reason to shiver or move about, thus dis-

turbing or delaying the observations. No stand or platform was necessary as the floor was at right angles to the wall; the wainscoting was removed.

During the process of taking the bodily measurements, the pose of the person is of the utmost importance. The back, calves, buttocks and shoulders should be approximated to the cloth, but it must be seen to that the ophistocranial part of the head does not touch the perpendicular surface, otherwise the head will not be in the Frankfurt horizontal. The heels must be kept against the wall, touching each other, with the big-toes about 17 cms. apart. Standing in this fashion, the person finds no difficulty in standing in the same position during the time necessary for taking the bodily measurements. It is also essential that the hands and arms should be kept straight down against the side of the body, the palms being pressed against the flanks of the thighs. Shoulders should not be drawn up or be allowed to droop forward.

Concerning the head, it has been pointed out that the hinder part of the occiput must not touch the wall. During measurement of the bodily height (vertex above floor), the head must be held in the Frankfurt horizontal ("Ohr-Augen-Ebene"). I found that other workers proceeded in the same way adopted by me, i.e., getting the head in the required position and asking the individual to look at a distant spot, thus enabling him to keep the head in the wanted plane. Having placed the individual in the described position, I always explained that it was absolutely necessary for him to remain in such a position during the examination, and not to move about, thereby displacing the palpated marks. Where possible an assistant was allowed in the room to enter the readings on the "Messblatt".

To ensure accuracy concerning palpation of the points and to get experience in taking the somatoscopical side of the work, before tackling the final investigation of the Coloured People, I practised on about thirty students. During this period I also became accustomed to keeping the anthropometer in a vertical position when in use, which is of course essential for accurate readings. After palpation of the respective points a

tiny dot was made, on the spot, with the aid of a small pointed paintbrush dipped in Indian ink. Control palpations were always taken.

2. SOMATOMETRICAL FINDINGS.

(A) Absolute Values of Body.

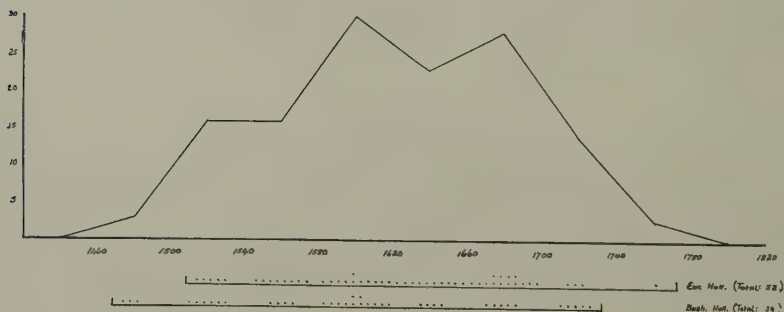
Under this heading, as already mentioned, only the absolute bodily measurements are discussed. In front of every heading will be found the number (in brackets) corresponding to that of the "Messblatt". The different headings are given in the same order as on the "Messblatt". The points between which the measurement was taken, or of which the distance above the floor was obtained, are also given in brackets; the instrument used for taking the distance is given in square brackets, [].

The abbreviations used are: a.f.—above floor, A.—anthropometer, B.C.—beam compasses, S.C.—sliding compasses, C.C.—calliper compasses, T.M.—tape measure.

(1) Bodily Height (Vertex a.f.). [A.]

In any kind of somatometrical work this measurement is perhaps the most important. If the height of the individuals of a race is more or less constant, it may be considered as a

Fig. II. Graphic representation of Stature.



racial characteristic. The results, taking the Coloured People as a whole, are as follows: Maximum: 1855 mm., mean: 1622 mm., minimum: 1462 mm. As will be seen (Fig. II illustrating this measurement), these people are heterogenous, as was to be expected. Instead of the curve reaching a climax and then descending to zero, it rises again from 23 tot 28 and only then sinks towards the horizontal axis.

Underneath the horizontal axis the different groups as represented in the graph were plotted. It is interesting to note that the groupings for the Eur.-Hott. section is more to the right than that of the Bush.-Hott. mixture, which again, is more to the left, which was also as predicted.

The following table gives a comparison of the groups represented in the Coloured People examined, with that of other races:

	<i>Max. mm.</i>	<i>Mean. mm.</i>	<i>Min. mm.</i>	<i>Number.</i>
Group taken as a whole.	1855	1622	1462	133
South African Students. ¹⁾	1932	1757	1623	129
Colourds, "Eur.-Hott."- group.	1753	1626	1502	52
Rehoboth Bastards, "Eu."- Gruppe. ²⁾	1844	1744	1706	12
Coloureds, Bush.-Hott. Group.	1736	1599	1462	39
Bushmen. ³⁾	—	1450	—	—
Hottentots. ⁴⁾	1765	1624	1505	—

Martin's (op. cit.) classification takes all statures lying between 1600-1639 mm. as "untermittelgross". We may thus take the Coloured People as a heterogenous race, somewhat small in stature although having a bodily height a little above the "klein" category of Martin (1500-1599 mm.).

¹⁾ van der Westhuyzen, (1929).

²⁾ Fischer, (1913).

³⁾, ⁴⁾ Schapera, (1930).

The average height approximates that of the Hottentots but is much higher than that of the Bushmen. This may be due to the mixture of European blood in the Cape Coloured People, since the European races belong to the taller peoples, and since tallness is dominant in the F_1 , F_2 and following generations. One must also bear in mind that the Bantu element will definitely raise the average (c.f. the plottings for the Eur. and Bush.-Hott. groups on graph, Fig. II).

(4) Height of upper breastbone ridge (Suprasternale a.f.). [A.]

This point is easily ascertained; palpating from above downwards one cannot miss the upper edge of the manubrium sterni, and usually there is no difficulty about the skin moving and displacing the marked point. As has frequently been pointed out by other workers, the upper ridge of the sternum sometimes slants backwards and upwards. Nearly always the cranial portion of the manubrium is groove-like and mostly the hinder (innermost) ridge forms the point to be palpated. In quite a number of cases the suprasternale and acromiale were more or less the same height a.f. The maximum found was 1541 mm., minimum: 1332 mm., mean: 1184 mm. The corresponding values for South African students are: 1594 mm., 1435 mm., and 1317 mm. (van der Westhuyzen, op. cit.).

(5) Height of Navel (Omphalion a.f.). [A.]

Maximum value: 1162 mm., minimum: 868 mm., mean value: 973 mm.

(6) Height of Pubic Symphysis (Symphysis a.f.) [A.]

The symphysis is to my mind one of the most difficult points to determine; Martin's instructions are the most helpful. Placing the left hand (palm against the body) a little above the coccyx, the actual palpation is done with the right hand. With the palm on the abdomen and middle finger (pointing downwards) in the medial axis of the body, the right hand is shifted downwards about half an inch at a time. In this way, while palpating with the third finger, the tip of the middle finger can ultimately feel the bony upper ridge of the pubic

symphysis. Care should be taken that no displacement of the skin takes place while marking the point. Usually the point was found ± 3 to 7 mm. below the upper boundary of the terminal hair of the pubic region. The values found were as follows: maximum: 1005 mm., minimum: 741 mm., mean: 849 mm. Van der Westhuyzen (op. cit.) gives for South African students the following values: maximum: 1039 mm., minimum: 801 mm., and mean: 907 mm. His mean for the stature of students being higher than the corresponding figure for the Coloureds, it follows that the symphysis in these latter will be much lower than in the case of the students.

The height of the symphysis was also used in calculating the following measurements: Anterior length of the trunk (46), whole length of the right leg (53), length of right leg minus foot (54) and length of femoral joint (55), so that it was absolutely essential to control the point before the final measurement was taken.

(7) Height of Right Nipple (Rt. Thelion a.f.). [A.]

Somatometrically this measurement was of no interest. On the other hand it is important for somatoscopical observations to be discussed later. The maximum value was 1366 mm., the minimum 1052 mm. and the mean 1190 mm. It is worth mentioning that the mean value obtained for this measurement agrees closely with the minimum value for students which is given: maximum: 1428 mm., minimum: 1190 mm. and the mean value: 1298 mm. (van der Westhuyzen, op. cit.).

(8) Height of Right Acromion (Rt. Acromion a.f.). [A.]

Finding both the claviculo-acromial articulation and the upper ridge of the *spina scapulae* and palpating laterally, is the best method of locating this point. On finding the lateral acromial ridge, it is necessary to palpate with the thumb nail for the most laterally situated point of the acromion. In muscular persons some difficulty is experienced in palpating the correct position, the *vagina mucosa intertubercularis* often interfering. During measurement the individual must keep his shoulders well back, i.e. no drooping of these parts should be allowed, and

the arms should be held straight down against the thighs. The following values were found: maximal value: 1532 mm., minimum value: 1195 mm. and mean value: 1327 mm.

(9) Height of Right Elbow Joint (Rt. Radiale a.f.). [A.]

As for the preceding point, and the two following, the arm should be held straight down against the side of the thigh, and the shoulders held as described above. Pronation and supination of the fore-arm, or bending the elbow, was found an aid when palpation was difficult. Usually, however, the humero-ulnar groove is an excellent guide. The maximal value was found to be 1187 mm., the minimum 911 mm. and the mean value 1016 mm.

(10) Height of Styloid Process of Right Radius (Stylian a.f.). [A.]

This process of the radius is easily obtained if palpation is done with the edge of the thumb nail, until the bony projection of the radius is reached. Maximum value was 895 mm., minimum 669 mm., mean 766 mm.

(11) Height of tip of Right Middle Finger (Rt. Dactylion III a.f.) [A.]

No stretching of the arm should be allowed; care should, of course, be taken that the shoulders are stationary and the operator should also be in a kneeling position. Maximum 686 mm., minimum: 504 mm. and mean: 594 mm.

(13) Height of Right Processus Spinosus Ant. Superius (Rt. Iliospinale a.f.). [A.]

One proceeds from the upper, lateral edge of the ilium, palpating with the upper margin of the thumbs and with the other fingers on the flanks of the thigh. Proceeding downwards, or better, with the hands in the same position, palpating upwards, the front edge of the ilium can easily be felt and it was then an easy matter to palpate the required point; care should again be taken not to displace the skin. In muscular individuals, it is

advisable to make the model bend slightly forward in the pubic region; after having found the point the thumbs are kept on the required spot, and the model is requested to assume a normal erect position. For this height the following values were obtained: Maximum: 1078 mm., minimum: 806 mm., mean: 905 mm.

(14) Height of Trochanterion a.f. [A.]

Although this point was examined and the results are given, one cannot rely too much upon them. The muscular and tendonous nature of the region over the upper portion of the thigh-bone (Trochanterion) makes palpation almost impossible in the living model, and hence the values are much too unreliable for any accurate conclusions to be drawn from them. This is much to be regretted, as many measurements pertaining to the leg are calculated from this height. Instead of recording doubtful measurements and equally unreliable results, the measurements were calculated according to a method suggested by Martin. These calculations will be discussed under the headings (53), (54), (55) and (56). The results based upon direct measurement are: maximum value 1007 mm., minimum value 765 mm. and the mean value 864 mm.

(15) Height of Right Knee Joint (Ht. of Rt. Tibiale a.f.). [A.]

Palpation of the tibiale is sometimes quite difficult; by flexing the leg of the model at the knee joint and palpating the groove where the thigh and tibia (median aspect) articulate with each other, the exact point can, however, be found. Maximum value: 534 mm., minimum value: 387 mm., with a mean value of 435 mm.

(16) Height of Right Inner Condyle (Sphyrion a.f.). [A.]

The utmost care should be taken over this mark. The medial malleolus of the tibia is usually covered by a strong ligament (**anterior annular ligament**), frequently offering remarkable resistance, and thus easily confused with a skeletal substratum. By lifting the leg, and moving the foot to the left and right at the ankle joint, one can find the sphyrion. As this

measurement is used in a later calculation, special precautions have to be taken against erroneous taking. Maximum value: 80 mm., minimum: 46 mm. and mean 63 mm.

(17) Span (Rt. Dact. III to Left Dact. III—arms stretched).

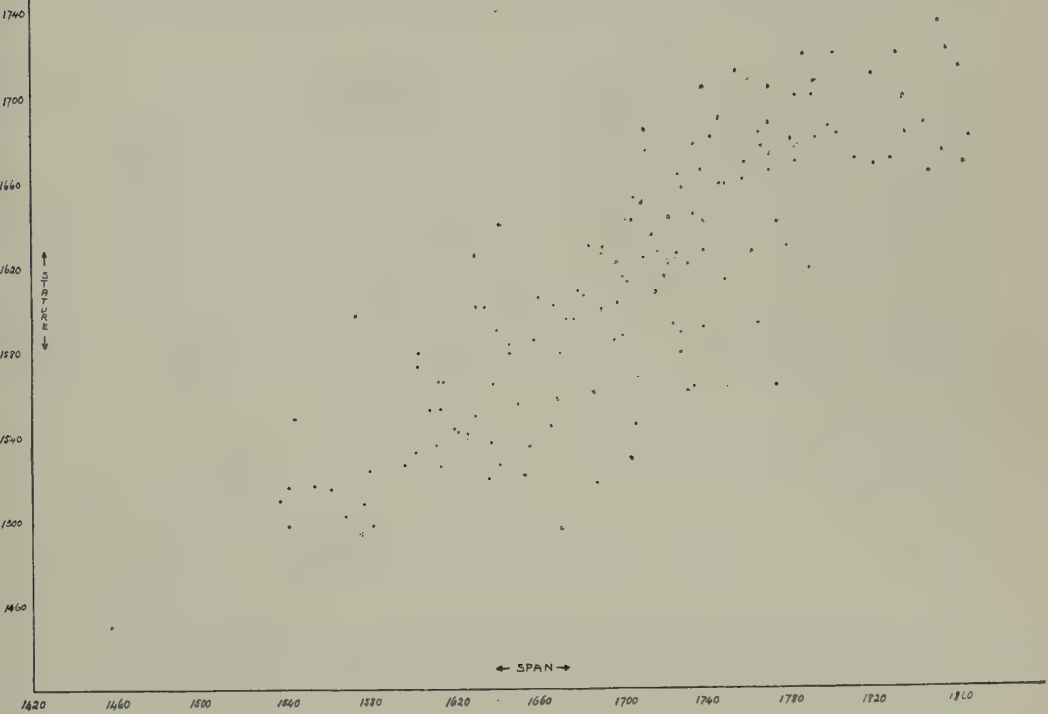
[A.]

This is the distance between the tips of the middle fingers of the left and right hands, with arms stretched as far as possible in a horizontal plane. The measurement was always taken facing the model. Two methods were followed:—

(1) The model is requested to stretch his arms horizontally against the cloth at his back; with dact. III of the left hand pressed against the lower edge of the fixed socket of the topmost crosspiece, and the corresponding finger of the right hand against the upper margin of the sliding socket; the model was requested to stretch his arms as far as possible. Thus the movable socket was pushed towards zero by the model himself, until the whole span was recorded. The scale is then read at the junction of the upper margin of the gliding socket and the scale. This reading had then to be subtracted from 2000 mm. to get the actual span.

(2) The above procedure is a lengthy one and not so practical as the one later adopted. With the foot end of the A. against the wall, the instrument is again held horizontally in the region of the clavicles. The dact. III of the right hand was pressed against the wall next to the foot end (zero) of the A.; the tip of the middle finger of the left is now pressed against the lower surface of the movable socket and shifted towards the fixed socket, until the maximum span-length is reached. One can then read off the distance directly from the scale. During these measurements, care should be taken that the different tube-pieces of the A. do not come apart. Quite a number of individuals showed signs of apparent infantilistic development of the arms. As the maximum value will show, a case was recorded in which the span exceeded the 2000 scale of the

Fig. III Scattered Diagram.
 (showing the relation between stature and span)



Anthropometer! In this instance I used the gliding compasses to measure the extra length.

In the accompanying graph, fig. III, the relation of the span to the stature was plotted and the result is a very interesting "scattering". As was to be expected, the points are grouped about a relatively straight line. Comparison should also be made with the span-stature index discussed at a later stage. The maximum value was 2018 mm., the minimum value was 1436 mm. and the mean 1709 mm. These values are somewhat on the small side, as far as minimum and mean are concerned, but it should be borne in mind that the length of the arm of the Bushman is the shortest on record (Schapera, op. cit.) and this

fact makes these values all the more important, as we know that the Bushman race is certainly represented in these people. (See also under indices treatment of this measurement.)

(23) **Sitting Height (Vertex above stool).** [A.]

The model was requested to sit on a low stool so that the thighs were in a plane horizontal to that of the body. He was further asked to sit straight up, and the head was orientated in the Frankfurt horizontal. With the base of the A. near to the coccygeal region, the gliding part was brought downwards until the crossbeam touched lightly on the vertex. As in all measurements of height, the A. should be kept in a vertical position.

Maximum value: 920 mm., minimum value: 741 mm. and mean value: 825 mm.

(27) **Anterior Length of Trunk.**

This measurement was calculated by subtraction of measurement 6 from 4, i.e. the height of the symphysis a.f. subtracted from the height of the suprasternale a.f. The models had no objection to palpation and measurement of the symphysis. Maximum value: 542 mm., minimum value: 413 mm. and mean value: 483 mm.

(35) **Distance between Acromia.** [B.C.]

The model should not droop his shoulders forward; the crosspieces are so adjusted that they are of equal length and have their pointed edges facing each other. The distance between the left and right acromion is then taken, holding the tube-part parallel to the chest. The observer may take the measurement either from the back or the front of the model; in this work the latter position was used.

Maximum value: 422 mm., minimum: 318 mm. and mean: 380 mm. For South African students (van der Westhuyzen,

op. cit.) the following figures are given: maximum: 424 mm., minimum: 320 mm. and mean: 378 mm.

(38) Distance between Thelia. [B.C.]

Touching lightly with the pointed part of the stationary crossbeam on the midpoint of the right thelion and manipulating the sliding portion with the right hand until the other crosspiece touches the corresponding point of the left thelion, the distance is easily obtainable. Maximum: 229 mm., minimum: 162 mm. and mean: 193 mm.

(40) Breadth of Pelvis (Dist. between Iliocristalia). [B.C.]

With the crossbeams drawn out to their maxima, the instrument is applied in a plane horizontal to that of the pubic region, with the sacral region between the arms of the beam-compasses. Pushing the sliding socket inwards, the measurement was read off when the inner surface of the crossbeams could just slide up and down over the crests of the two iliacal sides.

The following table gives the results in comparison to those of South African students (van der Westhuyzen, op. cit.):

	<i>Max.</i>	<i>Min.</i>	<i>Mean.</i>
Coloureds	291 mm.	218 mm.	262 mm.
Students	329 mm.	287 mm.	232 mm.

(41) Distance between Iliospatialia Anteriora. [B.C.]

Care was taken not to touch the marked points with the pointed edges of the crosspieces as displacement of the skin occurs very easily. Bringing the movable crossbeam inwards, one can obtain the accurate measurement without touching either of the palpated markings, the fixed part being held just over the iliospatialia. Maximum value: 248 mm., minimum value: 177 mm. and mean value: 210 mm.

(45) Total Length of Right Arm.

This length was calculated by subtracting measurement 11 from 8. Maximum: 852 mm., minimum: 615 mm. and mean: 734 mm. Van der Westhuyzen (op. cit.) gives for South African students a mean value of 798 mm., which is about 64 mm. larger than obtained for the Coloured People. This may again be due to the Bushman element represented in these people. As already mentioned, the Bushman arm is the shortest on record. (Schapera, op. cit.)

(46) Total Length of Right Arm minus Hand.

By deducting the height of the right styloid process from the height of the right acromion, this measurement can be calculated (8—10). Maximum: 662 mm., minimum: 485 mm. and mean 561 mm.

(47) Length of Right Upper-arm (Acromion-Radiale).
[B.C.]

It is best to keep the immovable arm of the instrument close to the radiale, since this point is located in a groove, one can easily hold the pointed part on the spot, and locate the acromion with the gliding crossbeam.

	<i>Max.</i>	<i>Min.</i>	<i>Mean.</i>
Coloureds	362 mm.	265 mm.	312 mm.
S. Afr. students (van der Westhuyzen, op. cit.)	384 mm.	222 mm.	334 mm.

Comparing these two mean values, we see that the upper arm of the Coloured man is shorter than that of the students by 22 mm.

(48) Length of the Right Fore Arm (Radiale-Stylien).
[B.C.]

In this case the point of the fixed crossbeam is best held on the stylien and the gliding part brought downwards until

the radiale is reached. Better manipulation is possible with the crossbeam pushed backwards, the pointed parts protruding about 2 to 4 cms. from their sockets. (Nearly all these measurements can be calculated by subtracting the required measurements from the heights, e.g. this measurement could be calculated by subtracting the height of the stylium a.f. from that of the radiale a.f., the arm being kept perpendicular during measurement of these two points. Direct measurement is always the best, however, and only in the case of the different elements constituting the whole leg, calculation was resorted to, as there the palpation of the trochanterion is somewhat difficult. Maximum: 309 mm., minimum: 219 mm., mean: 258 mm.

(49) Length of Right Hand. [B.C.]

As for other measurements, different anthropologists use different methods for finding this length. The procedure followed in this work, was to find the midpoint between the styloid process of the radius and the corresponding process of the ulna. Measurement was then taken from the dactylion III to this point. The mean value will then be higher than when the length of the hand is taken direct from the stylium to the tip of the middle finger. Maximum: 216 mm., minimum: 153 mm., mean: 185 mm.

(52) Maximum Breadth of Hand. [B.C.]

This comprises the oblique distance between the metacarpale mediale and metacarpale laterale, with the hand held horizontally and fingers extended. It is best to take the measurement over the dorsum of the hand, thus keeping the palm downwards. Maximum: 97 mm., minimum: 72 mm., mean: 83 mm.

(53) Whole Length of Right Leg.

For skeletal measurements this value would be the same as No. 14. As stated under heading No. 14, the trochanterial height is somewhat unreliable for reasons already named. According to Martin (op. cit.) there are several methods of obtaining this length indirectly. The one adopted was to add

35 mm. to measurement No. 6. Maximum: 1040 mm., minimum: 789 mm., mean: 885 mm.

(54) Length of Right Leg minus Foot.

This measurement was obtained by subtraction of the height of the sphyrion a.f. from the height of the symphysis a.f. and adding 5% to the total. Maximum: 981 mm., minimum: 654 mm., mean: 828 mm.

(55) Length of Femoral Joint (Thigh).

Obtained by subtracting measurement 15 (Tibiale a.f.) from No. 6 (symphysis a.f.) and adding 10%. A standardised direct measurement of the last three lengths, would be a great aid, as calculation takes considerable time; moreover, directly reading off from palpated marks, leaves less scope for erroneous results. Lacking this direct method, one has to resort to calculation, as these measurements are fairly important. Maximum: 518 mm., minimum: 374 mm., mean: 453 mm.

(56) Length of Tibial Joint.

The length of the tibia is represented by the distance between the tibiale and the sphyrion. Thus by subtracting 16 from 15 this measurement is obtained. Maximum: 463 mm., minimum: 326 mm., mean: 372 mm.

(58) Length of Right Foot (Acropodion-Pternion). [B.C.]

Keeping the fixed crossbeam on the most posteriorly situated point of the heel, the sliding socket was moved inwards until the crosspiece just touched the tip of the longest toe (usually the big toe). Although Martin (op. cit.) advises that the individual stand on one leg only, the model was requested to rest his full bodily weight on both legs. In this way the actual normal maximal length of the right foot was obtained. Maximum: 294 mm., minimum: 217 mm., mean: 254 mm.

(59) Maximum Breadth of Right Foot. [B.C.]

The foot was kept in the same position as during the above measurement, and the distance was then measured with the beam-compasses (metatarsale laterale to metatarsale mediale). In taking this measurement the B.C. have to be held obliquely across the foot as the points are so disposed. Maximum: 124 mm., minimum: 89 mm., mean: 101 mm.

(61) Circumference of Chest (Quiet-respiration). [T.M.]

Measuring the chest circumference is notoriously not easy. There is always a tendency among the models to stop breathing or to inflate the thorax, thereby seriously hindering the taking of the desired readings. By personal demonstration of what was required, the models were assisted over this initial difficulty. The arms were first held horizontally and the tape measure put round the back over the inferior angles of the scapulae, then brought towards the sternae region. The arms were then lowered to their prescribed position against the sides; the tape is allowed to slip through the fingers of the observer to make allowance for the respiratory movements. The ends of the tape measure were now placed over the mesosternale with the readings adjoining. The middle point, between normal inspiration and expiration can then easily be read off. Maximum: 999 mm., minimum: 732 mm., mean: 870 mm.

(61a) Circumference of the Chest during maximum Inspiration. [T.M.]

With the tape measure held in the position described above, the individual taking a maximum inspiration, and the tape being played out as the thorax expands, the circumference is read off at the climax of inspiration. The same precautions are to be taken as for 61. Maximum: 1115 mm., minimum: 749 mm., mean: 893 mm.

(61b) Circumference of Chest during maximum Expiration. [T.M.]

The model is requested to exhale as far as possible and the same procedure in using the tape measure was adopted as for

61a and 61b. Maximum: 960 mm., minimum: 720 mm., mean: 841 mm.

(65) Maximum Girth of Right Upper Arm. [T.M.]

The tape was held round the arm at the groove-like union of the biceps with the deltoid. Maximum: 310 mm., minimum: 200 mm., mean: 258 mm.

(65 I) Maximum Girth of Right Upper-arm (bent). [T.M.]

With the biceps maximally contracted the tape was passed round the muscle in a plane perpendicular to that of the arm held horizontally to the body for purposes of the measurement. Maximum: 345 mm., minimum: 227 mm., mean: 291 mm.

**(66) Maximum Girth of Right Lower-arm (stretched).
[T.M.]**

For this measurement the values were as follows: Maximum: 299 mm., minimum: 207 mm., mean: 256 mm.

(67) Minimum Girth of Right Lower-arm. [T.M.]

The measurement was taken in the vicinity of the wrist, proximal to the condyles of the radius and ulna. Maximum: 185 mm., minimum: 136 mm., mean: 163 mm.

(68) Maximum Girth of Right Thigh. [T.M.]

The model under observation was asked to stand with legs a little apart, thus enabling the observer to put the tape round the thigh in a horizontal position. The tape usually passed just below the gluteal fold at the back. The model was then told to assume the prescribed position with the weight of the body resting on both legs; the natural maximum girth was then ascertained. Maximum: 577 mm., minimum: 401 mm., mean: 477 mm.

(69) Maximum Girth of Right Calf. [T.M.]

During the measurement of this circumference the model stood in the prescribed position and the tape was then applied round the thickest part of the calf. Maximum: 390 mm., minimum: 274 mm., mean: 320 mm.

(70) Minimum Girth of Right Tibial Joint. [T.M.]

The values found were: Maximum: 257 mm., minimum: 175 mm., mean: 203 mm.

It is obvious that the above three girths of the different regions of the leg will be less than if they were taken on a model resting full bodily weight on one leg only. If the girths of the arm are to be taken in a natural posture it is not logical to adopt another posture for the girths of the leg.

Unfortunately an anthropological scale used for ascertaining the bodily weight was not available. Consequently value 71 and the Index of "bodily fullness" could not be taken.

B. ABSOLUTE CEPHALIC MEASUREMENTS**(1) Maximum Length of Head (Glabella-Ophisthocranion).**

[C.C.]

This measurement is easily obtained, the only difficulty being the tangled hair of some individuals impeding the gliding movements of the rounded points of the instrument. The results for the group as a whole, together with some for the smaller individual groups, are given in the following table, some comparative values for other races being included:—

	<i>Max. mm.</i>	<i>Min. mm.</i>	<i>Mean. mm.</i>
Coloureds (group as a whole) (133) ..	208	172	191
Eur.-Hott. group (52)	206	178	190.5
Bush.-Hott. group (39)	206	180	190
Rehoboth Bastards (Hott. Gruppe) ¹⁾	—	—	196.8
S. Afr. students ²⁾	208	179	197
South Australian Aborigines ³⁾	—	—	187
Hottentots ⁴⁾	—	—	192

Comparing the mean length for the first three groups in the above table, with that of the Hottentots (below), it is evident that the intermixture of bloods tends to minimize the absolute cephalic length. Fischer (op. cit.) found a higher value for the Rehoboth Bastards (Hott. Gruppe.) than that obtained for the Coloureds; it is somewhat smaller than that given by van der Westhuyzen (op. cit.) for South African students. Further notes on this measurement will be found under "Index cephalicus", treated under heading 3 below.

(3) Maximum Breadth of Head. [C.C.]

The results are tabulated below:

	<i>Max. mm.</i>	<i>Min. mm.</i>	<i>Mean. mm.</i>	<i>Author.</i>
Coloured people.	158.0	132.0	147.0	Van der Westhuyzen. (op. cit.). Schultze, (op. cit.).
Eur.-Hott. group.	158.0	138.0	147.5	
Bush.-Hott. group.	157.0	132.0	145.0	
S. Afr. students.	166.0	142.0	153.0	
Hottentots.			140.0	

¹⁾ Fischer (op. cit.)

²⁾ van der Westhuyzen, (op. cit.).

³⁾ Campbell and Lewis, 1926.

⁴⁾ Schultze, 1928.

A very small difference was found as regards the mean head-length of the individual groups, although the Bush-Hott. type definitely has a smaller mean value.

(4) Breadth of Forehead, (Distance between Fronto-Temporalia). [C.C.]

It was found that the arc formed by the frontal bones varies a good deal. The minimum breadth sometimes lies high up, while for others the fronto-temporalia are nearer to the upper boundary of the eye-brows. Maximum: 117 mm., minimum: 88 mm., mean: 101 mm.

(6) Maximum Distance Between Zygia. [C.C.]

The manipulation of the instrument is the same as in the above measurements. Beginning at the region of the Trachus, the points are moved up and down over the zygomatic arches, while the instrument is brought forward towards the orbits, the maximum reading is then recorded. Maximum: 147 mm., minimum: 118 mm., mean: 133 mm.

(8) Distance between the Gonia. [C.C.]

Measurements 6 and 8 were directly read off from the scale of the compasses without first marking the different points, although careful palpation is necessary. The angle of the mandible is better located by means of the index-fingers, and the instrument is then applied to them and moved up and down until the maximum distance is ascertained. Maximum: 119 mm., minimum: 88 mm., mean: 103 mm.

(9) Distance between the inner angles of the Eyes, (Entocanthia). [S.C.]

The sliding-compasses were held at an angle of about 35 degrees to the surface of the skin. Much coaxing was necessary to induce the individual to keep his eyes wide open. Maximum: 45 mm., minimum: 32 mm., mean: 36 mm.

(11) **Width of the Eye-slit (Entocanthion-Ectocanthion).**
[S.C.]

It was found advisable not to hold the instrument parallel to the face; but to hold the compasses with the point, as it were, pointing towards the ecto- and entocanthia. In a parallel position the edges of the cross-pieces are held too far from the respective inner and outer angles of the eye-slit, and a rather smaller measurement might so be obtained. Maximum: 30 mm., minimum: 21 mm., mean: 27 mm.

(12) **Distance between the Pupils.** [S.C.]

The measurement was not obtained for squint-eyed persons, a few such-like having presented themselves for the investigation. Maximum: 69 mm., minimum: 52 mm., mean: 60 mm.

(13) **Width of the Nose.** [S.C.]

It was anticipated that in a mixed breed such as the Coloureds variations from the broad, flat nose of the Bantu and the apposed nasal flanks of the European should be found. Maximum: 50 mm., minimum: 32 mm., mean: 41 mm. For the Bush-Hott. group the following values were obtained: Maximum: 46 mm., minimum: 37 mm., mean: 41 mm., and for the Eur.-Hott. group: maximum: 46 mm., minimum: 33 mm., mean: 40 mm. The following values should be compared with the above: Rehoboth bastards, mean: 40 mm., for the "Eu."-Gruppe, and 42 mm. for the Hott.-Gruppe (Fischer, op. cit.). Schultze (op. cit.) gives 42 mm. as the mean value for Hottentots, and Van der Westhuyzen (op. cit.) 35 mm. for South Afr. students.

(14) **Breadth of Mouth, (Dist. between Cheilia).** [S.C.]

In an individual with healthy teeth, the distance is easily measureable, but the absence of some or all of the incisors naturally affects the distance between the Cheilia. An interesting observation worth mentioning is that the mucous membrane of the upper lip was frequently wider than that of the lower lip. Maximum: 62., minimum: 41., mean: 50 mm.

(15) The Auricular Height of Head, (Trachion-Bregma).

[B.C.]

This is a notoriously difficult measurement; the procedure was as follows: the person was asked to bend forward a little at the pubic region. The head is thus brought slightly in front of the body, and then adjusted in the Frankfurt horizontal. Next, the lower limb of the beam-compasses is pushed back so that ± 3 cm. protruded from the socket, the remaining cross-piece is pulled out to its maximum length. The pointed end of the shorter cross-piece is held over the Trachion and the scale-piece pulled downwards until the inner surface of the upper crossbar just touches the Bregma. Before taking the reading, the tube-piece of the instrument must be in a vertical position. For this reason the model was asked to bend forward a little so as to obviate the left shoulder getting in the way. The ear-needles were not used. Maximum: 130 mm., minimum: 95 mm., mean: 114 mm.

The average value is somewhat low, but Schultze (op. cit.) gives as mean value for the Hottentots: 116 mm.

(16a) Total Height of Head, (Gnathion-Vertex). [B.C.]

The absence of the front teeth alone will not affect this measurement, as the normal height of the head will be the same with all the teeth or with the molars alone present. Quite a number had no teeth at all, or, in the lower jaw or maxilla only. In such cases the measurement was not taken. Maximum: 253 mm., minimum: 181 mm., mean: 211 mm.

(17) Physiognomical Facial Height (Gnathion-Trichion).

[B.C.]

The head need not be orientated in the Frankfurt horizontal as the measurement is non-projective, but the limbs of the instrument must be of equal length. Maximum: 206 mm., minimum: 134 mm., mean: 177.5 mm.

(18) Morphological Height of Face, (Gnathion-Nasion).
[B.C.]

In some people the Nasion is rather difficult to palpate and again the effect of the absence of teeth must be borne in mind. Maximum: 136 mm., minimum: 97 mm., mean: 115 mm.

(19) Physiognomical Upper Facial Heights, (Nasion-Stomion).
[B.C.]

This height can also be obtained by using the blunt ends of the sliding-compasses. Maximum: 83 mm., minimum: 62 mm., mean: 73 mm.

(20) Morphological Upper Facial Height, (Nasion-Prosthion).

Since the front teeth were mostly absent, the mean value was not worth calculating. For similar reasons the maximum and minimum values are not given.

(21) Height of Nose, (Subansion-Nasion). [S.C.]

To facilitate the measuring of this height, the model was asked to look slantingly upwards towards the ceiling. Maximum: 56 mm., minimum: 38 mm., mean: 48 mm.

(22) Basal Length of Nose (Subnasion-Pronasion). [S.C.]

To my mind, none of the instruments used by Martin are particularly handy for taking this measurement. The sliding-compasses are perhaps the most satisfactory. The blunt ends were used, the shaft being held slanting upwards, so as to avoid the chin getting in the way. The "Lehrbuch" recommends a projective measurement. Maximum: 26 mm., minimum: 15 mm., mean: 19 mm.

(25) Height of the Mucous Membrane of the Lips. [S.C.]

This measurement was ignored in cases where all the teeth, or the upper or lower set were missing. As was to be expected, the Bantu type has thick lips, whereas the Eur.-Hott. and Bush-

Hott. groups have medium lips. Maximum: 31 mm., minimum: 6 mm., mean: 22 mm.

(29) Physiognomical Length of Ear, (Super-Subaurale). [S.C.]

Maximum: 72 mm., minimum: 46 mm., mean: 59 mm. Martin (op. cit.) places the Hottentot and Bushman ear in the hypermikrotic category, the measurements being: 49 mm. for the Hottentots (according to Schwalbe, cited from Martin op. cit.) and 52 mm. for the Bushmen (Karutz, cited from Martin op. cit.) The physiognomical ear length of the Coloureds is of the mikrotic type.

(30) Physiognomical Breadth of Ear, (Praeaurale-Postaurale). [S.C.]

Maximum: 39 mm., minimum: 24 mm., mean: 33 mm. The ear of the Coloured man must therefore be regarded as small. For further detail, reference should be made to the Somatoscopical section below.

(31) Morphological Length of Ear. [S.C.]

Of the total number investigated, only twenty individuals possessed the tuberculum Darwinii, and even in these it was not so distinct as in some Europeans. Schultze (op. cit.) found only three cases out of a total of hundred Hottentots. Maximum: 37 mm., minimum: 23 mm., mean: 32 mm.

(32) Morphological Breadth of Ear, (Otobasion inferius-Otobasion superius). [S.C.]

Maximum: 63 mm., minimum: 31 mm., mean: 48 mm.

(45) Horizontal Cephalic Circumference. [T.M.]

Maximum: 610 mm., minimum: 523 mm., mean: 560 mm.

(48) Sagittal Cephalic Arch, (Nasion-Inion). [T.M.]

The procedure followed in taking this measurement, was to press the zero of the tape down on the Inion with the

thumb (edge of the nail). Maximum: 428 mm., minimum: 337 mm., mean: 389 mm.

(49) **Transverse Cephalic Arch, (L. Tracion-R. Trachion).**
[T.M.]

Maximum: 377 mm., minimum: 300 mm., mean: 335 mm.

3. INDICES.

A. Relative Values.

The relative values discussed below refer to Martin's "Lehrbuch" (op. cit.) and his "Anthropometrie" (1925).

$$\text{Sitting Height, } \frac{23 \times 100}{1}$$

Maximum: 55 %, minimum: 48 %, mean: 51 %. This mean value may be compared with the following corresponding figures (all cited from Martin, op. cit.): Belgians: 52.2 %, Eskimo's: 51.4 % and Bushmen: 49.5 %. The mean value obtained for the Coloureds thus approaches that of the European. For South African students Van der Westhuyzen (op. cit.) gives a mean of 51 % which is identical with the mean for Coloureds.

$$\text{Anterior length of Trunk, } \frac{27 \times 100}{1}$$

The length of the vertebral column constantly changes during life. The relative value is highest during, and for a short period after intra uterine life. Then again it diminishes until puberty is reached, after which it again increases and ultimately, in old age it shortens (calcification of the intervertebrate discs). We may thus get a variety of results if the same persons are measured periodically. This fact must be borne in mind in comparing the following results. (The average age of the Coloureds may be taken as, approximately, thirty). Maximum: 34 %, minimum: 26 %, mean: 30 %. Compare the following relative lengths of the trunk with the above: South African students (Van der Westhuyzen, op. cit.): 30 %; English students: 31.8 %; Japanese (working class): 33.7 % and Austra-

lan Aborigines: 33.4% (Martin, op. cit.). There is again a striking similarity between the values given for South African students and the Coloureds.

$$\text{Relative length of whole Arm, } \frac{45 \times 100}{1}$$

According to Iwanowski (Martin, op. cit.), persons having a relative value of over 45% must be looked upon as being long-armed and those having a relative value below 43% as short-armed. Judging by the following values: maximum: 48%, minimum: 42%, mean: 45%, the Coloureds approach the former type.

$$\text{Relative Upper Arm length, } \frac{47 \times 100}{1}$$

Maximum: 21%, minimum: 18%, mean: 19%. The mean value in this case is intermediate between the standardised racial mean which is given (Martin, op. cit.) as between 17 and 18%. The mean value for the Coloureds is also well within the limits of the mean values given for Europeans; on the other hand, it is relatively high compared with similar results given for Asiatic peoples. (Martin, op. cit.).

$$\text{Length of Fore-arm, } \frac{48 \times 100}{1}$$

The following are representative values for relative fore-arm lengths: Senoi: 13.8%; Japanese students: 14.1% (Martin, op. cit.); Bushmen: 15.5% (Schultze, op. cit.); South African students: 15.0% (van der Westhuyzen, op. cit.). We thus find the values ranging from 13 to 18 per cent. The values for the Coloureds are: maximum: 17%, minimum: 15%, mean: 16%.

$$\text{Relative length of Hand, } \frac{49 \times 100}{1}$$

Judging by the following percentages: maximum: 13%, minimum: 10%, mean: 11%, the hand is of a medium size.

$$\text{Relative Span-width, } \frac{17 \times 100}{1}$$

Attention is drawn to the absolute measurements discussed above. Fig. III should be particularly referred to.

The values for the Coloureds are: maximum: 114 %, minimum: 98 %, mean: 105 %. Martin's "Lehrbuch" gives the following figures: Polar Eskimo: 99.3 %; Patagonians: 101.4 %; Bushmen: 102.1 %; Australian aborigines: 104.9 % and South African students 104.0 % (van der Westhuyzen, op. cit.).

For reasons previously discussed the relative value of the total leg is not given.

$$\text{Relative Length of Thigh, } \frac{55 \times 100}{1}$$

Maximum: 31 %, minimum: 25 %, mean: 28 %. According to Martin (op. cit.) there is a range of 22.9 % to 29.9 % for this value. As the mean value for the Coloureds is 28 %, the thigh must be looked upon as being on the long side. We must, however, bear in mind that different authors follow different methods for its calculation. Although a difference of a few millimetres will not greatly affect the results given in percentages, it is best to compare only values similarly calculated.

$$\text{Relative Length of Tibial Joint, } \frac{56 \times 100}{1}$$

The relative mean value seems to lie between 21.2 and 28.0 per cent., these means being for Todas and Japanese respectively (Martin, op. cit.) Taking this as a standard, we may put the Coloureds nearer to the lower figure, the values being: maximum: 25 %, minimum: 21 %, mean: 23 %. The relation between the stature and the tibial length is therefore fairly constant.

$$\text{Relative Length of Foot, } \frac{58 \times 100}{1}$$

For mechanical reasons we find a fairly constant relation between the foot-length and the bodily height. According to Martin (op. cit.) the minimum value registered is 13.7 %, whereas the same author gives 16 % as the maximum value. These figures illustrate the perfect co-ordination between the

foot-length and stature. The values for the Coloureds are: maximum: 17 %, minimum: 14 %, mean: 16 %, which last proves the Coloureds to be big footed.

$$\text{Relative Breadth of Shoulder, } \frac{35 \times 100}{1}$$

Although the absolute distance between the Acromalia seems to be fairly constant for some races, the relative value is apparently non-racial, or in Martins (op. cit.) own words: "Das Verhältniss der Schulterbreite zur Körpergrösse zeigt keine deutlichen Rassendifferenzen." Strangely enough we find some correlation between small relative shoulder breadths and lengthy trunks and vice versa. Maximum: 26 %, minimum: 20 %, mean: 23 %.

$$\text{Relative maximum breadth of Pelvis, } \frac{40 \times 100}{1}$$

Maximum: 18 %, minimum: 14 %, mean: 16 %. Comparing this mean with that of the Bushmen (Schultze, op. cit.) and South African students (van der Westhuyzen, op. cit.), we find very little difference, the figures being respectively: 16, 16.4 and 16 %.

$$\text{Relative distance between Iliospinalia ant. superiora, } \frac{41 \times 100}{1}$$

This value is fairly constant for various races. The values for Coloureds are: maximum: 15 %, minimum: 11 %, mean: 13 %, which last is well within the range given for African natives.

$$\text{Relative circumference of Thorax, } \frac{61 \times 100}{1}$$

The values were calculated for the chest during normal respiration. Maximum: 63 %, minimum: 47 %, mean: 54 %.

Résumé:

RELATIVE VALUE:		Max.	Min.	Mean.
Girth of Arm (stretched),	$\frac{65 \times 100}{1}$	21 %	13 %	16 %
Girth of Arm (bent),	$\frac{65(1) \times 100}{1}$	23 %	15 %	18 %
Max. circumference of Fore-arm,	$\frac{66 \times 100}{1}$	19 %	14 %	16 %
Min. circumference of Fore-arm,	$\frac{67 \times 100}{1}$	12 %	8 %	10 %
Max. girth of Thigh,	$\frac{68 \times 100}{1}$	36 %	24 %	29 %
Max. girth of Calf,	$\frac{69 \times 100}{1}$	30 %	16 %	20 %

The above values are practically the same as for South African students (van der Westhuyzen, op. cit.). Personally I do not regard the above six relative values as very important, as too much depended on the occupation of the individual.

$$\text{Relative height of the Acromiale, } \frac{8 \times 100}{1}$$

As Martin (op. cit.) mentions, and as was found during the investigations, the acromiale may sometimes lie below the suprasternal height, and sometimes at the same level, but mostly there is a tendency for the acromion to lie higher than the suprasternale. Maximum: 84 %, minimum: 79 %, mean: 82 %. The mean value given for South African students (van der Westhuyzen, op. cit.) is 81 %. Other comparative data are lacking.

$$\text{Relative Suprasternal height, } \frac{4 \times 100}{1}$$

Maximum, 84 %, minimum: 76 %, mean: 82 %. There is therefore a close relation between this relative measurement and the preceding one for reasons already explained.

$$\text{Relative height of Omphalion, } \frac{5 \times 100}{1}$$

Maximum: 64%, minimum: 57%, mean: 60%. This last value is absolutely identical with the mean value given for Bushmen (Schultze, op. cit.) and South African students (van der Westhuyzen, op. cit.).

$$\text{Relative height of Symphysis, } \frac{6 \times 100}{1}$$

The relative height of the symphysis for various races is approximately 50%. The values for Coloureds are: maximum: 55%, minimum: 49%, mean: 52%. For the Bushmen (Schultze, op. cit.) a mean of 52.9% is given; South African students having a mean of 52% (van der Westhuyzen, op. cit.).

B. Intermemberal Relative Values.

$$\frac{\text{Fore-arm}}{\text{Upper-arm}} \times 100, \quad \frac{48 \times 100}{47}$$

Maximum: 91.8%, minimum: 72.8%, mean: 82.3%. The following values may be compared with the above mean: Rehoboth bastards (Fischer, op. cit.): 84.4% and Congo negroes (Martin, op. cit.): 93.4%. The brachial indices for Bushmen (skeletal measurement, Martin, op. cit.) and for South African students (van der Westhuyzen, op. cit.) are 78.3 and 79.3 respectively; these two groups have contributed widely to the formation of the Coloured people.

$$\frac{\text{Hand}}{\text{Fore-arm}} \times 100, \quad \frac{49 \times 100}{48}$$

Maximum: 79.8%; minimum: 65.2%; mean: 71.9%.

$$\frac{\text{Tibial joint}}{\text{Thigh}} \times 100, \quad \frac{56 \times 100}{55}$$

Maximum: 95.0%, minimum: 73.9%, mean: 82.3%. The mean given for S. Afr. students (van der Westhuyzen, op. cit.)

is 85.9%. The difference may be due to the fact that for the students the length of the thigh (55) was calculated by subtracting the height of the tibiale a.f. from the height of the symphysis a.f. without adding 10% as was done in the case of the Coloureds.

$$\frac{\text{Foot}}{\text{Tibial joint}} \times 100, \quad \frac{58 \times 100}{56}$$

Maximum: 74.9%; minimum: 61.3%; mean: 67.4%.

$$\frac{\text{Total length of Arm}}{\text{Total length of Leg}} \times 100, \quad \frac{45 \times 100}{53}$$

This index is considered to have racial significance. Maximum: 89.2%; minimum: 75.9%; mean: 83.0%. Stratz (cited from Martin, op. cit.) gives the following values: Europeans: 80%, Japanese: 88%, Eskimo's: 92%. The mean given for the Coloureds is therefore more "European".

$$\frac{\text{Upper arm}}{\text{Thigh}} \times 100, \quad \frac{47 \times 100}{55}$$

Maximum: 79.7%, minimum: 62.2%, mean: 68.8%. This mean value must be looked upon as rather low as values for other races vary from 68.8% for Andamanen (Martin, op. cit.) to 72.9% for Italians (Martin, op. cit.).

$$\frac{\text{Fore-arm}}{\text{Leg}} \times 100, \quad \frac{48 \times 100}{56}$$

Maximum: 77%; minimum: 59.0%; mean: 68.8%. This mean value also holds for S. Afr. students (van der Westhuyzen, op. cit.).

$$\frac{\text{Max. circumference of Upper arm}}{\text{Max. circumference of Fore-arm}} \times 100, \quad \frac{65 \times 100}{66}$$

Maximum: 110.8%; minimum: 86.8%; mean: 99.3%.

$$\frac{\text{Max. circumference of Calf}}{\text{Max. circumference of Thigh}} \times 100, \quad \frac{69 \times 100}{68}$$

Maximum: 78.7%; minimum: 60.9%; mean: 67.6%.

$$\frac{\text{Distance between Nipples}}{\text{Distance between Acromia}} \times 100, \quad \frac{38 \times 100}{35}$$

Maximum: 59.6%; minimum: 41.4%; mean: 51.1%.

$$\frac{\text{Suprasternale—Navel height}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{(4.5) \times 100}{27}$$

Maximum: 82.6%; minimum: 60.3%; mean: 74.7%.

$$\frac{\text{Suprasternale—Interthelion distance}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{(4.7) \times 100}{27}$$

Maximum: 36.5%; minimum: 22.3%; mean: 29.1%.

$$\frac{\text{Distance between Acromia}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{35 \times 100}{27}$$

Maximum: 94.7%; minimum: 67.2%; mean: 78.0%.

$$\frac{\text{Distance between Thelia}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{38 \times 100}{27}$$

Maximum: 48.4%; minimum: 34.3%; mean: 40.0%. For S. Afr. students (van der Westhuyzen, op. cit.) the maximum is 58.7%; minimum: 27.2%; mean: 39.7%. Although the maximum and minimum percentages are markedly different, the means are practically the same for these two groups.

$$\frac{\text{Breadth of Pelvis}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{40 \times 100}{27}$$

Maximum: 62.0%; minimum: 44.7%; mean: 53.5%. For S. Afr. students the mean is 54.4% (van der Westhuyzen, op. cit.).

$$\frac{\text{Distance between Proc. Spin. Sup.}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{41 \times 100}{27}$$

Maximum: 50.7 %; minimum: 37.5 %; mean: 43.3 %. The corresponding mean for S. Afr. students (van der Westhuyzen, op. cit.) is 44 %. Comparing these two means, it is seen that the difference is only .3 %, whereas in the above intermemberal index (pelvic breadth) the difference between the means is .9 %.

$$\frac{\text{Length of Upper arm}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{47 \times 100}{27}$$

Maximum: 73.5 %; minimum: 53.2 %; mean: 64.6 %.

$$\frac{\text{Length of Fore-arm}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{48 \times 100}{27}$$

Maximum: 62.2 %; minimum: 44.5 %; mean: 53.0 %.

$$\frac{\text{Length of Hand}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{49 \times 100}{27}$$

Maximum: 46.1 %; minimum: 33.4 %; mean: 38.0 %.

$$\frac{\text{Total Arm-length}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{45 \times 100}{27}$$

Maximum: 174.7 %; minimum: 133.4 %; mean: 150.8 %.

$$\frac{\text{Total Leg-length}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{53 \times 100}{27}$$

Maximum: 206.3 %; minimum: 156.6 %; mean: 183.2 %.

$$\frac{\text{Length of Tibial Joint}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{56 \times 100}{27}$$

Maximum: 90.0 %; minimum: 66.0 %; mean: 77.0 %.

$$\frac{\text{Length of Thigh}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{55 \times 100}{27}$$

Maximum: 111.0%; minimum: 74.7%; mean: 93.3%. The mean given for S. Afr. students (van der Westhuyzen, op. cit.) is 83.3%. There is a noted difference between these two means, but I am convinced that if the method of calculation had been the same, the results would have tallied better. Direct measurements would have been a great advantage, but unfortunately this was not possible, as already explained.

$$\frac{\text{Length of Foot}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{58 \times 100}{27}$$

Maximum: 60.8%; minimum: 46.1%; mean: 52.3%. It has already been stated that the Coloureds have large feet. The mean obtained for this index clearly bears this out.

$$\frac{\text{Circumference of Chest (Quiet respiration)}}{\text{Anterior length of Trunk}} \times 100, \quad \frac{61 \times 100}{27}$$

Maximum: 212.3%; minimum: 157.0%; mean: 179.3%.

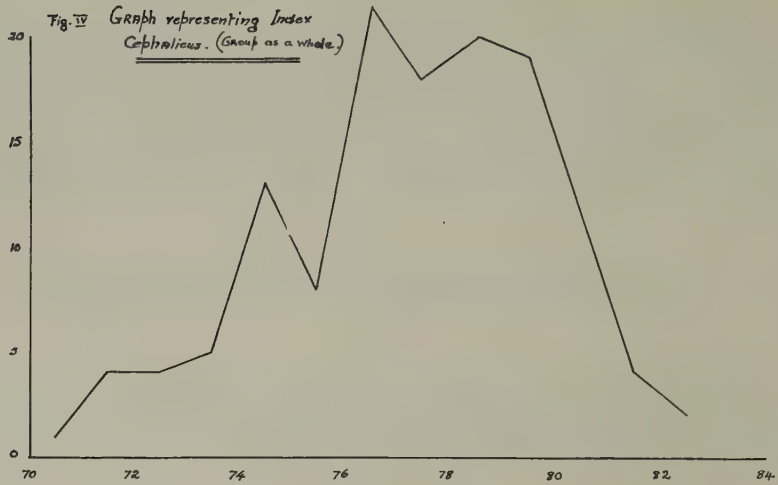
$$\frac{\text{Breadth of Pelvis}}{\text{Breadth of Shoulders}} \times 100, \quad \frac{40 \times 100}{35}$$

Maximum: 82.9%; minimum: 39.0%; mean: 68.8%. Martin (op. cit.) gives the following mean values: Fiot: 65.3%; Jews: 74.2% and Sudanese negroes: 74.6%. This mean obtained for the Coloureds is therefore definitely low.

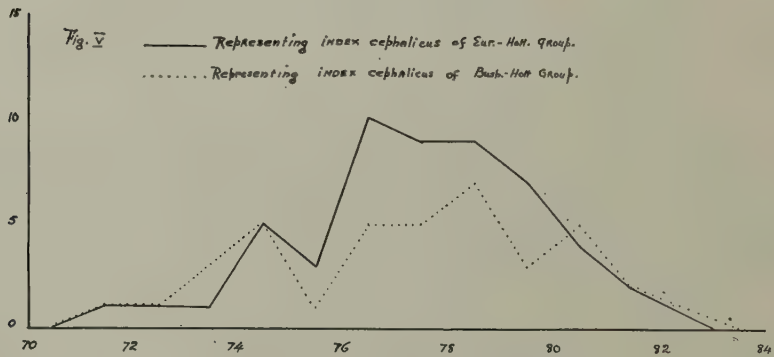
C. CEPHALIC INDICES.

$$\text{Index cephalicus, } \frac{3 \times 100}{1}$$

The values for the group as a whole are: maximum: 87.2%; minimum: 67.7%; mean: 77.2%. The mean value therefore proves that the Coloureds belong to the mesocephalic type. The heterogenous nature of the group is again clearly illustrated by the accompanying graph (Fig. IV). The mean values for the Eur. Hott. and Bush. Hott. types are 77.4% and



77.3% respectively. Fig V gives the values for these two subdivisions graphically.



$$\text{Length-Height Index, } \frac{15 \times 100}{1}$$

The values given below are for the group as a whole, and the mean value places them under the orthocephalic class. Maximum: 70.6%; minimum: 50.2%; mean: 59.6%. For S. Afr. students (van der Westhuyzen, op. cit.) a mean value of 55% is given, which classes them under the chaemaecephalics.

$$\text{Breadth-Height Index, } \frac{15 \times 100}{1}$$

Maximum: 91.1%; minimum: 62.8%; mean: 77.5%. Compare the following figures with the above: Hottentots (Schultze, op. cit.): 82.8%; Bushmen (Schultze, op. cit.): 79.5% and S. Afr. students (van der Westhuyzen, op. cit.): 80.4%. The mean for the Coloureds is therefore fairly low.

$$\text{Transverso-Frontal-Parietal Index, } \frac{4 \times 100}{3}$$

Maximum: 79.0%; minimum: 60.7%; mean: 68.7%.

Facial Indices.

$$\frac{\text{Physiognomical Facial Height}}{\text{Maximum breadth betw. Zygia}} \times 100, \frac{17 \times 100}{6}$$

Maximum: 155.8%; minimum: 108.9%; mean: 132.8%.

$$\frac{\text{Morphological Facial Height}}{\text{Maximum breadth betw. Zygia}} \times 100, \frac{18 \times 100}{6}$$

Martin (op. Cit.) subdivides this index as follows: Hypereuryprosopic (x—78.9), euryprosopic (79.0—83.90), mesoprosopic (84.0—87.9), leptoprosopic (88.0—92.9) and hyperleptoprosopic (above 93.0%). Judging from the results obtained (Maximum: 100.7%; minimum: 75.0%; mean: 86.2%), the Coloureds belong to the mesoprosopic type; S. Afr. students (van der Westhuyzen, op. cit.) are leptoprosopic.

$$\frac{\text{Physiognomical Upper Facial Height}}{\text{Maximum breadth betw. Zygia.}} \times 100, \frac{19 \times 100}{6}$$

Maximum: 83.3%, minimum: 47.0%; mean: 54.0%. The Coloureds can be classed under the mēsen group as given by Martin (op. cit.) under which all values from 52% to 56.9% are catalogued.

Nasal Indices.

Before giving the values obtained for the nose, the importance of the nasal features is again stressed. By close inspection of the nasal-root, bridge and further characteristics, together with other facial features, one can usually make a close estimation as to the ascent of an individual. The indices given below are therefore of the greatest importance.

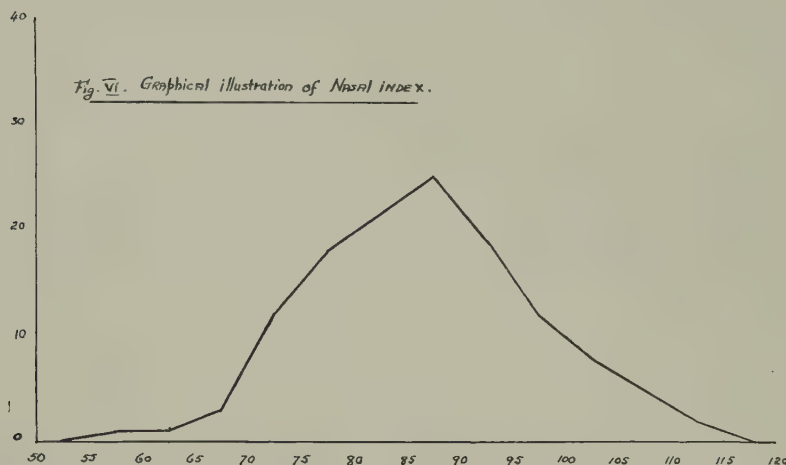
$$\text{Height-Breadth Index of Nose, } \frac{13 \times 100}{21}$$

The following results and conclusions speak for themselves; the numbers denote percentages: —

<i>Race or Group.</i>	<i>Max.</i>	<i>Min.</i>	<i>Mean.</i>	<i>Author.</i>
Coloureds (whole group)	113.2	58.2	85.5	
Bush-Hott. group	113.2	73.1	88.9	
Eur.-Hott. group	112.2	62.3	81.6	
Rehoboth bastards, "Eu."-Gruppe	90.0	67.0	77.2	Fischer (op. cit.)
Rehoboth bastards, "Hott."-Gruppe	107.0	75.0	85.0	Fischer (op. cit.)
Hottentots			100.0	Schultze (op. cit.)
Bushmen			115.0	Schultze (op. cit.)
Australian aborigines			104.6	Campbell (op. cit.)
S. Afr. students	78.3	41.5	58.8	v. d. Westhuyzen (op. cit.)

Of the groups tabulated above, only the students fall under the leptorrhine category (55.0—69.9). Under the mesorrhine (70.0—84.9), the Eur.-Hott. group (Coloureds) and "Eu."-Gruppe (Rehoboths) can be classed. The group as

a whole together with the Bush-Hott. type and "Hott."-Gruppe (Rehoboths) may be considered chamaerrhine (85.0—99.9), whereas the Hottentots and Bushmen are known to be of the hyperchamaerrhine type (100.0—x).



The graph (fig. VI) illustrates the height-breadth index of the nose, and clearly illustrates that the Coloureds are a flat-nosed race.

$$\text{Breadth-Depth Index of Nose, } \frac{22 \times 100}{13}$$

Maximum: 71.9%; minimum: 36.7%; mean: 46.3%.

Auricular Indices.

$$\text{Physiognomical Index of Ear, } \frac{30 \times 100}{29}$$

Maximum: 71.7%; minimum: 42.8%; mean: 56.9%. Judging from these values and the absolute auricular ones, it may be said that the ear of the Coloureds is of medium size.

$$\text{Morphological Index of Ear, } \frac{32 \times 100}{1}$$

As previously stated, the occurrence of the Tuberculum Darwinii is relatively scarce among the Coloureds. The values are as follows: maximum: 196.5%; minimum: 122.8%; mean: 158.8%.

4. SOMATOSCOPICAL OBSERVATIONS.

The somatoscopic work proved to be of great interest, especially the distribution of pigment in the different regions of the skin and the close relation between the colour of the iris, hair and skin. The opportunity was also made use of to observe the relation between the colour of the nipple, scrotum and penis; to my knowledge no such observations have yet been made for a coloured population.

Before discussing the different aspects as tabulated on the observation sheet, attention is drawn to a few curious facts to which little or no reference is made in the literature at my disposal. In the first place there is the profuse perspiration always observed during the first quarter of an hour or so of the investigation. The naked individuals did not appear to be bashful in the least, and when asked if they were, they emphatically denied it. The perspiration was exuded mainly from the arm pit and in some cases it was so profuse that a streamlet of sweat ran down the flanks of the model. The extraordinary thing is that the secretion only seems to take place during the first quarter of an hour of the examination. The act of secretion must be the result of some psychological state ("Beobachtungsfurcht") and is apparently not influenced by temperature. It is also worth mentioning that in some individuals the watery liquid had a milkish white appearance never observed in Europeans on whom I practised.

The "bouquet d'afrique" was very noticeable in almost all cases. During the examination of a number of Bushmen, I also noticed a very definite bodily odour of a peculiar "smoky" type, and markedly different from that of the Coloureds.

(a) General state of Health and Nourishment.

As only healthy adults were observed, it follows that the majority showed no external signs of disease. Numerous scars and other marks were observed on the body, especially on the arms, legs and chest and were invariably the results of private "squabbles". It is very interesting to note that not a single individual can be described as fat; the majority fall under the "normal", only about ten per cent. under the "lean" and still fewer under the "normal to fat" side. It is a remarkable fact that fatness is rarely found among male coloured people, although it has a high incidence among the women folk (steatopygie of the Hottentots, etc.). The absence of "fatness" among the men may be due to their frequently strenuous lives.

(b) The Skin.

The skin is mostly rough and dry, although quite often a comparatively soft epidermis was registered. Moist skins were found to be well represented. Seventeen individuals had greasy skins and in nine cases a more or less velvety surface was registered. Elderly people always had rough, dry skins, and softness and moistness invariably seemed to go hand in hand. The table below gives the respective groups with the number of cases registered under each:—

<i>Velvety.</i>	<i>Soft.</i>	<i>Rough.</i>	<i>Moist.</i>	<i>Dry.</i>	<i>Greasy.</i>
9	61	62	45	72	17

In using von Luschan's tablet for determining the colour of the skin over the various regions, one must get used to tilting the tablet at the right angle, or else the reflected light will make the comparison of the glass pieces and the skin almost impossible. Although one does not frequently find a tanning of the skin among Coloureds, the exposed parts sometimes show an inclination to appear as such, especially the neck region. No albinotics were noticed; such individuals are indeed great rarities as one knows from personal experience of Coloureds. Birthmarks or other more darkly pigmented areas were not come across very often. Once in a while a darker or lighter area was seen on the

glans penis or on the penis itself. In this connection one calls to mind the unpigmented (red) area found on the lips of the "Masbiekers".

According to Davenport (1926) and Fischer (1913), the pigmentation of the skin mendels, black being more tenacious than the lighter hues. The latter statement is clearly illustrated in the Bantu mixed breeds as in these cases the dark skin always indicates Bantu ancestry. As already indicated, the Indian crossbreeds show a more copper or bronze-coloured skin, the Hott. Bush. type a more coffee-and-milk colour, and the Eur. types have a lighter shade, intermediate between brown Asiatic (xanthodermic) and the so-called white skin.

The average values for the different regions are given below (von Luschan's tablet):—

	<i>Forehead</i>	<i>Cheeks</i>	<i>Thoracic region</i>	<i>Abdomen</i>	<i>Shoulder blade</i>
<i>Colour No.</i>	6—16	6—16—25	18—23	12—25	6—16
<i>Inner upper arm</i>	<i>Outer upper arm</i>	<i>Palm</i>	<i>Tibial joint.</i>	<i>M. membrane of Upper Lip</i>	<i>M. membrane of Lower Lip</i>
16—23	16—17	23	23—26	23—26	24—26

A few remarks about the colour of the palm and the mucous membranes of the upper and lower lips: unfortunately the hardness of the palmar epidermis makes it a difficult task to get the exact pigmentation of the inner layer of the skin. Paint stains very often frustrated attempts to determine the natural colour of the palm. The colour of the lips is easily determined. The upper lip, as a rule, has a lighter shade than the lower, as can be seen from the above table.

(c) Colour of the Iris and Sclera.

Martin's "Augenfarbentafel" only provides for sixteen shades of eye colour, so that in some cases one has to combine

two of the shades to get the approximate colour of the iris. The following table gives the results of the investigation:

Colour No.	1	2	3	4	5	6	8	16	1+2	2+3	3+4	4+5
Individuals	11	43	39	14	2	3	4	1	4	3	4	5

We may now divide the number of examined persons into groups according to their eye colour. Taking the combinations 1+2, 2+3 and 3+4 as brown, and the remaining 4+5 as blue-green, we may tabulate the results as follows:—

	<i>Black</i>		<i>Brown.</i>					<i>Blue-green.</i>			<i>Green.</i>	<i>Blue.</i>
our No.	1	2	3	4	1+2	2+3	3+4	5	6	4+5	8	16
ividuals	11	43	39	14	4	3	4	2	3	5	4	1
centage	8.4	32.2	29.1	10.1	3.1	2.3	3.1	1.1	2.3	3.8	3.1	.8
centage groups)	8.4	79.8						7.6			3.1	.8

The above arrangement proves that the majority of Coloureds (79.8 per cent.) have a brown eye-colour. Black and green eyes are practically found in the same percentage. The solitary individual having colour No. 16 belonged to a Eur.-Hott. type.

About sixty per cent. of the eyes examined showed a purple-ish ring, usually within the innermost region of the border of the iris.

The colour of the sclera shows marked variations in the different groups. The colouring among the Eur.-Hott. group is mostly bluish whereas in the Bush.-Hott. type a yellowish sclera is seen. Forty-one per cent. of the Coloureds show a yellowish, and about fifty-four per cent. a bluish sclera. The remaining showed shades between yellow, blue and white, while two individuals had a definite brownish colouring.

(d) The Hair.

The form of the hair: The hairy covering of the scalp of the Coloureds can be classed into three principal groups. The form of hair mostly represented is the "woolly" type. (Martin (op. cit.) is opposed to the use of the term "woolly" though it is very descriptive of this kind of hair). The hair in this case is a tangled, fluffy mass of short spirally coiled hairs not very unlike the fleece of a sheep. Under this category the Bantu-Hott. and most of the Bush-Hott. individuals can be classed. Some of the Eur-Hott. type also fall under this group. The typical Bushman or Hottentot "peperkorrels" ("Pfefferkornhaar") is also classed under this type as it seems to be a mere modification. About fifty-five per cent. (73 persons) represented the Ericome type. The majority of Coloured people are thus either belonging to the Ericomes or to the Lophocomes.

A large number of the Eur-Hott. type have hair quite different from that of the usual Hott-Bush. and more like the hair of the European. The single hair, when pulled out, presents a wavy appearance, the "waves" being wide as illustrated in Martin's "Lehrbuch" (op. cit., p. 189) form e. The hair-form of the European is therefore not always lost in the offspring. Under this class, roughly called "waves broad", twenty-six per cent. of the investigated persons can be grouped.

The last group may be called straight haired individuals; the Ind-Hott. stock invariably belonged to this category. The eleven per cent. of straight haired individuals measured corresponds closely with the twelve per cent. of Ind-Hott. mixtures.

Locky hair was not encountered, and the beard was disregarded altogether.

The hairy covering of the body disclosed some interesting facts that can be summed up as follows: In general the Coloureds are scantily provided with bodily hair. Among the Bush-Hott. type scarcely any bodily hair is found at all. The Eur-Hott. and Ind-Hott. types are more hairy, especially on the arms and legs.

The hair surrounding the genitalia is more often than not spirally twisted in most of the groups. Where the Bushman element is predominant the nature of the terminal hair is always fil-kil. Among the Indian stock the hairy covering of the pubic regions is usually more straight than spiral.

The distribution of hair on the body is represented by the following table:—

<i>Profuse.</i>	<i>Medium.</i>	<i>Weak.</i>	<i>Very weak.</i>	<i>Absent.</i>
3	11	22	48	49

the figures representing individuals.

The Colour of the Hair.

Dust and other particles of dirt are often found in the hair on the scalp, taking away its lustre. This is usually noticed where the “netted” form of hair, likely to accumulate dust particles, is encountered. To eliminate erroneous readings in these cases, the colour of the hair had to be taken at the sides of the head and consequently the hair colouring of the remaining individuals was taken above the temples. A red sheen of the hair sometimes caused some difficulty, but with experience the actual colour is easily ascertained.

The colour of the hairy covering of the scalp can be divided as follows (the numbers of the different colours, constituting the groups, are given in brackets): Dark brown to black (3, 27, 28, 29 and 30): 108; dark-brown (4 and 5): 13, and Brown (5 and 6): 12. The majority of Coloureds therefore have dark hair, the colouring of the terminal and bodily hair also bearing this out. It is not unusual to find that the terminal hair was not of a uniform colour, areas of red and lighter shades frequently being found.

(e) The Genital Organs and Nipples.

In taking the colour of the penis and scrotum, care should be taken not to touch these parts with the colour-tablet and in registering one has to proceed very tactfully in making the observations.

The Penis: The form of the penis varies in the different groups investigated. Where there is a predominance of Bushman blood, we find the typical Bushman penis: short, pendent and nearly always pointing somewhat to the left. The Bant.-Hott. group, on the other hand, shows the Bantu penis, which is long, slender and always pendulous. Seiner (Schapera, op. cit.) also points out that the pendent penis of the Bushman begins to descend and elongate as soon as the Bantu element mixes with the Bushmen. The Eur.-Hott. group and the remaining persons all showed a medium sized penis.

No groupings could be made as to the covered or uncovered state of the glans-penis. In forty-eight cases a completely covered glans was found, sixteen individuals showed a partly covered and thirty-three persons a completely uncovered glans.

The Scrotum and Nipples: It was not considered necessary to take dimensions of the nipples, as this sort of work is of little use when males are being observed. Little need be said about the scrotum of the Coloureds as nothing unusual was recorded.

The Colour of the Nipples, Penis and Scrotum. The relation between the pigmentation of these three regions is as remarkable as that of the skin, iris and hair. The colour mostly found is No. 26 or No. 29, which is remarkably different from the shades representing the pigmentation of the body in general. For descriptive purposes we may call it (especially No. 29) a dark mouse-colour. The distribution of pigment is not always uniformly spread over the scrotal surface, the apex or distal end invariably being more intensely pigmented than the upper region.

The results are given below (the numbers representing individuals):—

Colour No.	12	14	16	17	18	22	23	24	25	26	27	28	29	30	Intermediate Between 25—30
Nipples	1		1			2	6		12	37	7	4	50	12	1
Penis		1		2			8		1	27	3	4	79		8
Scrotum		1		1	1	1	9	2	1	27	4	9	69	1	7

The Colour of the Nails: Of a total number of individuals seventy-two per cent. had a nail colour No. 11, about ten per cent. No. 22, and for the rest, shades ranging between Nos. 23 and 24. Among European races the colouring of the mucous membrane immediately underneath the nail is red to pinkish, whereas the nails are bluish in the Coloureds.

(f) General description of the Head.

The personal factor cannot be entirely eliminated in the somatoscopical observations; still, differences due to this factor are not very important. In the following pages the head and face (with a few exceptions, such as the nose, lips, etc.) will be dealt with taking the group as a whole as the number of individuals constituting a group is too small.

The Occiput: The type of occiput mostly found can be described as arched (58.9 per cent.) and in 52 individuals (39.1 per cent.) as prominent. Cases in which the occiput is perpendicular or flat occur very seldom, only .7 per cent. of the former and 1.4 per cent. of the latter having been recorded.

The Crown: The crown can be described as a gentle arch passing from the occipital to the parietal part of the cranium. In 27 per cent. the crown was quite flat, 27 per cent. feebly arched, 34 per cent. moderately arched, and the remaining 12 per cent. strongly arched. All four types provided for on the observation sheet were thus represented and more or less equally represented.

The Forehead: The nature of the forehead is best illustrated by the following table:—

<i>Description.</i>	<i>No. of individuals.</i>	<i>Percentage.</i>
Low	26	19.5
Medium	38	28.6
High	69	51.9
Narrow	12	9.0
Medium	27	20.3
Broad	94	70.7
Straight	70	52.6
Moderately receding	56	42.0
Strongly receding	7	5.3
Flat	92	69.2
Arched	41	30.8

A high, broad, straight and flat forehead may thus be taken as being typical.

(g) The Face in General.

The majority have a moderately high, oval face. Round faces or elliptical ones are found in the same ratio, whereas angular faces are the rarest. The face is usually of the lean type.

Among the Bush-Hott. and Bantu-Hott. types we find a comparatively flat, broad face owing to the flatness of the nose and the broadness of the nasal root. The Ind.-Hott. type often have a triangular face, i.e. the cheeks recede outwards and backwards.

The cheekbones and broad forehead give the upper face a broad appearance which diminishes towards the lower border of the mandible. The lower jaw has a triangular appearance: the chin forms the rounded apex in front, and the mandible forms two of the sides, the third being represented by an imaginary line connecting the moderately broad gonias.

The cheekbones are classed as follows:—

<i>Characteristic.</i>	<i>Number of Individuals.</i>	<i>Percentage.</i>
Strongly protruding	50	37.6
Moderately protruding	71	53.4
Receding	12	9.0

(h) The Eye-slit.

The eye-slit is usually found to be moderately wide. The horizontal breadth of the eye-slit is discussed in the part dealing with the absolute cephalic measurements (op. cit.). Mongolian folds were found in twenty-one individuals and when present it usually was in both eyes of the Bush-Hott. type. Slanting eye-slits were rarely observed.

(j) The Nose in General.

Reference should be made to the section dealing with the absolute facial measurements and cephalic indices (op. cit.). With respect to the root of the nose, the general rule is that the more European blood is present in a crossbred, the higher is the root. A high nasal root always goes hand in hand with a narrow one; inspection of the Eur-Hott. type bears this out. The Bush-Hott. group mostly has the flat, broad, Bushman nose. Among the Ind-Hott. type one usually finds a narrow, high nasal root and bridge, thin wings, a long thin septum and obliquely or longitudinally disposed narial openings.

Narrow bridges are practically the exception to the rule. Only in cases of Indian ascent, or in those with a high percentage Eur. blood, is a high, narrow bridge encountered. The majority of cases show a medium-sized, and where the Bush. or Bantu element is strongest, a broad nasal bridge. Straight bridges are most frequently represented when European blood is present, and the concave form is abundantly found in the Bush. and Bantu types. Wavy and convex forms are relatively scarce.

Tip of the nose: Pointing forwards: 56.4%; pointing upwards: 24.1%, and pointing downwards: 19.5%.

The following table gives all the data concerning the wings of the nose:—

<i>Characteristic.</i>	<i>Thick.</i>	<i>Medium.</i>	<i>Thin.</i>	<i>High.</i>	<i>Medium.</i>	<i>Low.</i>	<i>Apposed.</i>	<i>Mod. Bulging.</i>	<i>Inflated.</i>
No. of Individuals	59	15	59	51	30	52	19	85	29
Percentage	44.3	11.3	44.3	38.3	22.7	39.0	14.3	63.9	21.8

A brief survey of the form of septum found in the majority of Coloureds leads to the following: Usually the septum is broad when it is short. Long and narrow septums are found in the Ind. and Eur. groups, although the latter often show a tendency to have a broad or medium septum. In 59 per cent. of the Coloureds the septum was found to be salient below.

Wide and obliquely oval openings are most frequently encountered; roundish and transversely oval ones were observed in the same percentage. As a rule the openings are large, only thirteen per cent. of small ones having been recorded.

(k) The Teeth.

From the outset of the investigation it was found that the teeth were in a bad condition. The upper incisors, and in many cases even the molars and pre-molars were missing. Often, when some teeth are present, they are in a bad condition. It is a noteworthy fact that men born in the Karroo or inland districts always showed healthy teeth.

Because of the missing incisors, some interesting observations had to be disregarded, as for example the incidence of dental prognathy. The effect of the absence of teeth on the absolute facial measurements has already been pointed to.

A few of the points recorded are given below:—

Colour of the teeth: A yellowish colour is generally observed (53.4 per cent.); white teeth were recorded in 29.3

per cent. of the whole group; bluish teeth were represented in 5.3 per cent.

The articulation of the upper and lower teeth can be summed up as follows:—

Labiodont:	51	individuals—	38.3	per cent.
Psalidodont:	55	„	41.3	„ „
Stegodont:	5	„	3.7	„ „
Ophistodont:	1	„	.8	„ „
Hiatodont:	2	„	1.5	„ „
Total:	114	„	85.6	„ „

Only one instance of progeny was recorded, and when the individual was questioned, it appeared that his whole family possessed this characteristic.

(l) The Ears.

The ears are mostly of the type known as “standing away from the head” (63.4 per cent); ears flat against the head were recorded in 36.6 per cent. The margin of the helix was found to be present, above and below, in 72.2 per cent. No instances of the total absence of the margin were recorded. The only other characteristic worth mentioning is the comparative scarcity of the tuberculum Darwinii. The occurrence of the so-called Bushman ear, i.e. one having a folded upper margin of the helix, was recorded more often than the tuberculum Darwinii so often found on the helix margin of the European. From the fact that the Darwinian tubercule is seldom found among the Bushmen and Hottentots, and that it is often represented in Europeans, and knowing that it is hereditary, (T. Quelprud, 1934) it seems clear that the European admixture is responsible for its presence in the Coloureds. It only occurred in twenty individuals, these being mostly of the Eur. Hott. stock.

(m) The Hands.

The average hand length is 185 mm., the breadth 83 mm. The hand may thus be considered as being on the small side, notwithstanding the fact that the length measurement was taken between the tip of the longest finger and the midpoint between the styloid processes of the radius and the ulna. The general

appearance of the manus is one of plumpness, which is enhanced by the thickness and roughness of the palm. Slender hands are rarely found among these people, probably on account of hard manual labour.

The diameter of the fingers can be classed as follows: thick: 66.9 per cent., thin: 23.3 per cent., medium: 9.8 per cent. Short and thick fingers often go hand in hand. Long, short and medium sized fingers were more or less found in the same ratio as thick, thin and medium fingers (i.e. 66.2, 26.3 and 7.5 per cent.) Tapering fingers were found in 25 cases.

Large, long, broad and arched nails are the rule; further data are tabulated below:—

<i>Characteristic.</i>	<i>No. of Individuals.</i>	<i>Percentage.</i>
Large	75	56.4
Medium	16	12.0
Small	42	31.6
Long	71	53.4
Medium	15	11.3
Short	47	35.3
Narrow	21	15.8
Medium	11	8.2
Broad	101	76.0
Arched	131	98.4
Flat	2	1.6
Sagittally curved	124	93.2
Oval	48	36.1
Roundish	24	18.0
Fanlike	48	36.1
Squarish	13	9.8

Simian fold: left hand: 7.5 per cent.; right hand: 5.2 per cent.; left and right hand: 11.3 per cent.; absent: 76.0 per cent.

(n) Calves and Feet.

Thick, short and vigorous calves are mostly found. The feet are usually very large, the soles being of a rubber-like nature. Judging by the figures (see below) a long, broad foot is the rule. Flat, arched feet are found to be equally common (51.2 and 48.8 per cent. respectively).

The Feet:

<i>Characteristic.</i>	<i>No. of Individuals.</i>	<i>Percentage.</i>
Large	62	46.65
Medium	26	19.50
Small	45	34.80
Long	73	54.95
Medium	19	14.35
Short	41	30.70
Narrow	39	29.30
Medium	25	19.00
Broad	69	51.90

Toes: The big toe (both feet) is usually the longest; in 110 instances in the right foot and 108 instances in the left foot, this was actually the case. In 13 out of the 133 cases in the right foot, and in 16 out of the same total in the left foot, the second toe was the longest. In 10 cases the first and second toes were of equal length. Opposition of the big toe was not encountered; 43.6 per cent. of the total show apposed big toes and in 56.4 per cent. the big toe was bent inwards.

CONCLUSIONS.

The deductions based upon the above somatometrical and somatoscopic observations point, as was expected, to the heterogeneity of the group treated, although certain physical features seem to be fairly constant, e.g. the woolly hair and correlation of the pigmentation of hair, iris and skin or of the colour of the nipples, penis and scrotum. The nose shows as a rule the typical flattened shape associated with the Hottentot, Bushman and Bantu, all of whom have contributed towards the Coloureds.

The bodily height is intermediate between that of the Bushman and Hottentot on the one hand and the European on the other. With respect to the cephalic index they are mesocephalic. The nose and the face are respectively of the chamaerrhine and mesoprosopic types.

Certain sub-groups are physically more homogeneous, as for example the straight hair characterising the Indian-Hottentot group. The Bushman-Hottentot group has the shortest stature. The hair on the scalp and around the genitalia inclines to be of the peperkorrel type in the Bushman-Hottentot group, less so where the Bantu blood is evident; in the latter case the extremities are longer and more slender and the penis long and pendulous. The European-Hottentot type frequently has a lighter complexion; the nose is narrower and higher but the penis is of a typical dark pigmentation associated with the Hottentot and Bantu fore-fathers.

In cases of clear hybridization between two groups, the Bushman and Bantu features are dominant, but considerable European admixture results in the European facial type predominating.

The somatometrical findings clearly show the incipient "Europeanization" of the Coloureds, many of the absolute values and indices obtained for the latter showing a marked similarity to those obtained by van der Westhuyzen for Male South African students.

It would seem that the Coloureds are a hybrid group preserving many characteristics of their Hottentot, Bushman, Bantu or even Indian ancestors, as for example: the obvious darker pigmentation or the wider, flatter and lower noses, or, also certain features of the hairform, hair colour and implantation, but that the "Europeanization" as expressed in the indices has progressed further than is commonly supposed to be the case. This "Europeanization" is in my opinion responsible for such homogeneity as undoubtedly exists.

To avoid any misunderstanding I would like to state clearly and explicitly that the above investigations are not intended to be sociological in any way whatsoever; so that the prime purpose of the work was not to examine such questions as the state of nourishment or the hygienic or social status of the Coloureds. The work was an attempt to investigate the purely physical characteristics of the Coloured population using the standard technique of the late Professor Rudolph Martin, so as to place comparative and standardized physical anthropological data at the disposal of other workers using this now practically universally recognised method of physical anthropological procedure.

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